

REMARKS

The Examiner's Office Action of February 26, 2003 has been received and its contents reviewed. By the above actions, claims 1 and 3 have been amended, and new dependent claims 7 and 8 have been added. Claims 5 and 6 have been withdrawn from consideration in response to an Election Requirement. Accordingly, claims 1-4 and 7-8 are pending for consideration, of which claims 1, 3, and 4 are independent. In view of these actions and the following remarks, reconsideration of this application is now requested.

Referring now to the Office Action, claims 1-4 stand rejected under 35 U.S.C. §103(a) as unpatentable over Baker et al. (U.S. Patent 5,698,113 hereafter – Baker) in view of Somekh (U.S. Patent No. 6,394,109) and further in view of Sakai et al. (U.S. Patent No. 5,466,942 – hereafter Sakai). Further, claims 1 and 2 stand rejected under 35 U.S.C. §103(a) as unpatentable over Yan (U.S. Patent No. 5,928,817) in view of Pierrat (U.S. Patent No. 5,582,939). Still further, claims 3 and 4 stand rejected under 35 U.S.C. §103(a) as unpatentable over Yan in view of Pierrat and further in view of Somekh and further in view of Sakai. These rejections are respectfully traversed at least for the reasons provided below.

As amended, claims 1 and 3 further specify exposing a resist film to extreme ultraviolet radiation through a demagnification optical system and the photomask, and removing the deposited film from the photomask is performed at a location away from the demagnification optical system.

Baker teaches an invention relating to a reflective mirror, and a step of removing a multilayer film (ML) formed on a ZERODUR composing the reflective mirror. However, Baker fails to disclose or suggest a step of removing a deposited film deposited on the surface of a photomask as recited in amended independent claims 1 and 3.

Somekh teaches a cleaning the system of an EPL (Electron Projection Lithography) device. However, Somekh fails to disclose an exposure method of exposing a resist film to extreme ultraviolet radiation through a demagnification optical system and a photomask.

Further, Somekh teaches a step of removing contaminants from a mask. However, the step of removing contaminants from the mask is performed in the locality of an imaging (or projection) column (210). Hence, Somekh fails to disclose performing a step of removing the

deposited film from the photomask at a location away from the demagnification optical system as recited in amended independent claims 1 and 3.

Sakai teaches an invention related to a technique of directly forming a pattern on a resist film using charged beam. Since no photomask is used, Sakai completely fails to disclose a step of removing a deposited film from the surface of a photomask as recited in independent claims 1 and 3.

As discussed above, Baker, Somekh and Sakai fail to disclose the exposure method of exposing a resist film to extreme ultraviolet radiation through a demagnification optical system and a photomask. Baker and Sakai completely fail to disclose the step of removing a deposited film from the surface of a photomask.

With respect to claim 4, the Examiner cites Somekh's teaching of integrated cluster-tools with in-line transportation between tools, in col. 6, lines 26-30. However, Applicant respectfully submits Somekh does not disclose or suggest the step of transporting the photomask, from which the deposited film has been removed, in line from inside the first vacuum chamber to inside the second vacuum chamber as recited in claim 4.

In order to take col. 6, lines 26-30 in proper context, it is helpful to take Somekh's disclosure fully from col. 6, lines 18-30, which states:

In one embodiment of the present invention a computer 222 is used to control the vacuum pump 218, electron source 202, flow control unit 219 and one or more air locks 217. The computer 222 can automatically control the cleaning process by coordinating the operation of the lithography system 200 components. The computer 222 also allows the lithography system 200 to be manually controlled by an operator through a user input. The user input may be also connected to other control systems that can coordinate the operation of the lithography system 200 with other connect wafer processing components, including a wafer transportation system or a cluster tool.

Applicant respectfully asserts that clearly Somekh's general reference to manual or computer-controlled coordination of a lithography system with other connect wafer processing components does not at all suggest or disclose Applicant's specific claimed step of transporting the photomask, from which the deposited film has been removed, in line from

inside the first vacuum chamber to inside the second vacuum chamber as recited in claim 4.

Applicant respectfully asserts that only Somekh teaches a step of removing contaminants from a mask. However, the step of removing contaminants from the mask is performed in the locality of the imaging (or projection) column (210). Hence, Somekh fails to disclose performing the step of removing the deposited film from the photomask at a location away from the demagnification optical system as recited in Applicant's independent claims 1 and 3, and the step of transporting the photomask, from which the deposited film has been removed, in line from inside the first vacuum chamber to inside the second vacuum chamber as recited in independent claim 4.

With respect to Pierrat and Yan, these references are clearly deficient of performing the step of removing the deposited film from the photomask at a location away from the demagnification optical system as recited in Applicant's independent claims 1 and 3, and the step of transporting the photomask, from which the deposited film has been removed, in line from inside the first vacuum chamber to inside the second vacuum chamber as recited in independent claim 4.

For the foregoing reasons, the combinations of Baker, Somekh, Sakai, Pierrat, and Yan are not supportable, and claims 1-4 are distinguishable over the cited prior references.

In view of the amendments and arguments set forth above, Applicant respectfully requests reconsideration and withdrawal of all the pending rejections.

New dependent claims 7 and 8 have been added to further complete the scope to which Applicant is entitled.

While the present application is now believed to be in condition for allowance, should the Examiner find some issue to remain unresolved, or should any new issues arise which could be eliminated through discussions with Applicant's representative, then the Examiner is invited to contact the undersigned by telephone in order that the further prosecution of this application can thereby be expedited.

Respectfully submitted,



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